



The U.S. Attorney General has determined that the publication of this periodical is necessary in the transaction of the public business required by the Department of Justice. Information, instruction, and disclaimers are published in the January issues.

– MAY 2012 –

SELECTED REFERENCES

[The Selected References section is a compilation of recent publications of presumed interest to forensic chemists. Unless otherwise stated, all listed citations are published in English. Abbreviated mailing address information duplicates that which is provided by the abstracting service. Patents and Proceedings are reported only by their *Chemical Abstracts* citation number. For full text copies of any of the articles listed, you may email the DEA Library at dea.library@usdoj.gov.]

1. Blachut D, Wojtasiewicz K, Krawczyk K, Maurin J, Szawkalo J, Czarnocki Z. **Identification and synthesis of by-products found in 4-methylthioamphetamine (4-MTA) produced by the Leuckart method.** [Editor's Notes: Presents title study. Contact: Internal Security Agency, Forensic Laboratory, 1 Sierpnia 30A, Warsaw 02-134, Poland.]
2. Casale JF, Colley VL, LeGatt DF. **Determination of phenyltetrahydroimidazothiazole enantiomers (levamisole/dexamisole) in illicit cocaine seizures and in the urine of cocaine abusers via chiral capillary gas chromatography-flame-ionization detection: Clinical and forensic perspectives.** *Journal of Analytical Toxicology* 2012;36(2):130-135. [Editor's Notes: Illicit cocaine laboratories in South America have been adding phenyltetrahydroimidazothiazole enantiomers (levamisole and/or tetramisole) to refined illicit cocaine for over 8 years. A chiral capillary gas chromatographic methodology is presented for phenyltetrahydroimidazothiazole enantiomer determination in illicit cocaine samples and in the urine of cocaine abusers. Contact: Drug Enforcement Administration, Special Testing and Research Laboratory, 22624 Dulles Summit Court, Dulles, VA 20166, USA.]

3. Kavanagh P, O'Brien J, Fox J, O'Donnell C, Christie R, Power JD, McDermott SD. **The analysis of substituted cathinones. Part 3. Synthesis and characterisation of 2,3-methylenedioxy substituted cathinones.** Forensic Science International 2012;216(1-3):19-28. [Editor's Notes: The synthesis of the 2,3-isomers of MDPV, butylone, and methylone is reported. The isomers were characterized by ^1H and ^{13}C NMR spectroscopy and compared to the corresponding 3,4-isomers. A GC method is described which separates the 3,4- and the 2,3-isomers from each other. IR spectra of the 2,3-isomers are also compared with the corresponding 3,4-isomers. Contact: Department of Pharmacology and Therapeutics, School of Medicine, Trinity Centre for Health Science, St. James Hospital, Dublin 8, Ireland.]
4. Reitzel LA, Dalsgaard PW, Mueller IB, Cornett C. **Identification of ten new designer drugs by GC-MS, UPLC-QTOF-MS, and NMR as part of a police investigation of a Danish Internet company.** Drug Testing and Analysis 2012;4(5):342-354. [Editor's Notes: The identification of p-fluoroamphetamine, mephedrone (4-methylmethcathinone), flephedrone (4-fluoromethcathinone), PPP (α -pyrrolidinopropiophenone), MDPV (3,4-methylenedioxypropylone), bk-MBDB (2-methylamino-1-(3,4-methylenedioxyphenyl)butan-1-one), pFBT (3-(p-fluorobenzoyl)-tropane), and JWH-073 (1-butyl-3-(1-naphthoyl)indol), methylone (3,4-methylenedioxymethcathinone), and N-ethylcathinone by GC/MS, UPLC-QTOF-MS, and NMR is presented. EI-MS spectra and the proposed main fragmentation patterns are presented, as well as, QTOF-MS exact masses and fragments, and NMR chemical shifts. For the β -ketophenylethylamines (mephedrone, flephedrone, PPP, MDPV, Bk-MBDB, methylone, and N-ethylcathinone) some general fragmentation patterns observed in the EI-MS and QTOF-MS spectra are further discussed and compared to other β -ketophenylethylamines. Contact: University of Copenhagen, Department of Forensic Medicine, Copenhagen, Denmark.]
5. Uchiyama N, Kikura-Hanajiri R, Goda Y. **Identification of a novel cannabimimetic phenylacetylindole, cannabipiperidiethanone, as a designer drug in a herbal product and its affinity for cannabinoid CB₁ and CB₂ receptors.** Chemical & Pharmaceutical Bulletin 2011;59(9):1203-1205. [Editor's Notes: A new cannabimimetic phenylacetylindole (cannabipiperidiethanone, **1**) was found as an adulterant in a herbal product which contains 2 other known synthetic cannabinoids, JWH-122 and JWH-081. The identification was based on analyses using GC/MS, LC/MS, high-resolution MS, and NMR. Accurate mass spectrum measurement showed the protonated molecular ion peak of **1** at m/z 377.2233 $[\text{M}+\text{H}]^+$ and the molecular formula of **1** was $\text{C}_{24}\text{H}_{29}\text{N}_2\text{O}_2$. Both MS and NMR data revealed that **1** was 2-(2-methoxyphenyl)-1-{1-[(1-methylpiperidin-2-yl)-methyl]-1H-indol-3-yl}ethanone. Contact: National Institute of Health Sciences, Setagaya-ku, Tokyo, Japan.]

Additional References of Possible Interest:

1. Ferris TJ, Went MJ. **Synthesis, characterisation and detection of γ -hydroxybutyrate salts.** Forensic Science International 2012;216(1-3):158-162. [Editor's Notes: Presents title study. Contact: School of Physical Sciences, University of Kent, Canterbury, Kent CT2 7NH, United Kingdom.]

2. Grigoryev A, Kavanagh P, Melnik A. **The detection of the urinary metabolites of 3-[(adamantan-1-yl)carbonyl]-1-pentylindole (AB-001), a novel cannabimimetic, by gas chromatography-mass spectrometry.** Drug Testing and Analysis 2012;4(6):519-524. [Editor's Notes: Presents title study. Contact: Bureau of Forensic-Medical Expertise, Forensic-Chemical Division, Belgorod, Russia.]

3. Gottardo R, Miksik I, Aturki Z, Sorio D, Seri C, Fanali S, Tagliaro F. **Analysis of drugs of forensic interest with capillary zone electrophoresis/time-of-flight mass spectrometry based on the use of non-volatile buffers.** Electrophoresis 2012;33(4):599-606. [Editor's Notes: Presents title study. Contact: Department of Public Health and Community Medicine, Unit of Forensic Medicine, University of Verona, Verona, Italy.]

4. Heaton J, Gray N, Cowan DA, Plumb RS, Legido-Quigley C, Smith NW. **Comparison of reversed-phase and hydrophilic interaction liquid chromatography for the separation of ephedrine.** Journal of Chromatography, A 2012;1228:329-337. [Editor's Notes: Presents title study. Contact: Analytical and Environmental Sciences, School of Biomedical Sciences, King's College, London, United Kingdom.]

5. Licsandru A, Nacea V, Boscencu R. **Microwave assisted digestion of heroin street samples for trace metals analysis by inductively coupled plasma mass spectrometry.** Revista de Chimie 2012;63(1):86-91. [Editor's Notes: Presents title study. Contact: Central Laboratory for Drug Analysis and Profiling, General Inspectorate of Romanian Police, Bucharest 020123, Romania.]

6. Mantim T, Nacapricha D, Wilairat P, Hauser PC. **Enantiomeric separation of some common controlled stimulants by capillary electrophoresis with contactless conductivity detection.** Electrophoresis 2012;33(2):388-394. [Editor's Notes: Presents title study. Contact: Flow Innovation-Research for Science and Technology Laboratories (First Labs), Mahidol University, Bangkok, Thailand.]

7. Pal R, Megharaj M, Kirkbride KP, Naidu R. **Fate of 1-(1',4'-cyclohexadienyl)-2-methylaminopropane (CMP) in soil: Route-specific by-product in the clandestine manufacture of methamphetamine.** Science of the Total Environment 2012;416:394-399. [Editor's Notes: Presents title study. Contact: Centre for Environmental Risk Assessment and Remediation, University of South Australia, Adelaide, 5095 Australia.]

8. Peters FT, Martinez-Ramirez JA. **Analytical toxicology of emerging drugs of abuse.** Therapeutic Drug Monitoring 2010;32(5):532-539. [Editor's Notes: Presents a review of the analysis of piperazines, phenethylamines, 4-substituted amphetamines, β -keto-amphetamine, 2,5-dimethoxyamphetamines, pyrrolidinophenones, and synthetic cannabinoids. Contact: Institute of Forensic Medicine, University Hospital Jena, Jena, Germany.]

9. Sabino BD, Romeo W, Sodre ML, Correa DN, Pinto DBR, Alonso FOM, Eberlin MN. **Analysis of cocaine and crack cocaine via thin layer chromatography coupled to easy ambient sonic-spray ionization mass spectrometry.** American Journal of Analytical Chemistry 2011;2(6):658-664. [Editor's Note: Presents title study. Contact: Institute of Criminalistic Carlos Eboli, Rio de Janeiro, Brazil.]

10. Tsujikawa K, Mikuma T, Kuwayama K, Miyaguchi H, Kanamori T, Iwata YT, Inoue H. **Degradation pathways of 4-methylmethcathinone in alkaline solution and stability of methcathinone analogs in various pH solutions.** Forensic Science International 2012;220(1-3):103-110. [Editor's Notes: Analogs of methcathinone (MC), a psychoactive stimulant, are in circulation all over the world. These analogs have been assumed to be unstable in alkaline solutions, as is MC itself. The aims of this study were: (i) to identify the degradation products of 4-methylmethcathinone (4-MMC), a typical MC analog, in a solution at pH 12 and to determine the degradation pathway, (ii) to investigate the effects of antioxidants such as l-ascorbic acid and sodium sulfite on the degradation of 4-MMC, and (iii) to investigate the stability of seven MC analogs (4-MMC, 4-, 3-, or 2-fluoromethcathinone, 4-methoxymethcathinone, N-ethylcathinone, and N,N-dimethylcathinone) in solutions at different pHs. Contact: National Research Institute of Police Science, Kashiwa, Chiba 277-0882, Japan.]

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THE DEA STATE AND LOCAL FORENSIC CHEMISTS SEMINAR SCHEDULE

The schedule for the DEA State and Local Forensic Chemists Seminar is as follows:

September 10 - 14, 2012
November 5 - 9, 2012
March 11 - 15, 2013
June 10 - 14, 2013
September 16 - 20, 2013
November 4 - 8, 2013

The school is open only to forensic chemists working for law enforcement agencies. It is intended for chemists who have completed their agency's internal training program and have also been working on the bench for at least one year. There is no tuition charge. The course is held at the Hyatt Place Dulles North Hotel in Sterling, Virginia (near the Washington/Dulles International Airport). A copy of the application form is reproduced on the last page of this issue of *Microgram Bulletin*. Completed applications should be mailed to the Special Testing and Research Laboratory at 22624 Dulles Summit Court, Dulles, VA 20166. For additional information, email [DEA-Forensic Chemist Seminar@usdoj.gov](mailto:DEA-Forensic-Chemist-Seminar@usdoj.gov).

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SCIENTIFIC MEETINGS

Title: The 41st Annual MAFS Meeting
Sponsoring Organization: Midwestern Association of Forensic Scientists
Inclusive Dates: September 24 - 28, 2012
Location: Hilton Milwaukee City Center (Milwaukee, WI)
Contact Information: See website
Website: www.mafs.net

Title: Southern Association of Forensic Scientists 2012 Annual Meeting

Sponsoring Organization: Southern Association of Forensic Scientists

Inclusive Dates: September 30 - October 4, 2012

Location: Hilton Pensacola Beach Gulf Front (Pensacola Beach, FL)

Contact Information: See website

Website: www.southernforensic.org

DEA State and Local Forensic Chemist Seminar Application			
Name: (PRINT NAME EXACTLY AS IT IS TO APPEAR ON CERTIFICATE)		Title:	
Employer:			
Your Office Mailing Address (include city, state, and zip code):			Length of Service:
Business Telephone: () -	Business Fax: () -	Date of Application:	
Email Address:			
Education			
College or University	Degree	Major	
Please Check Which Techniques or Equipment Are Used in Your Laboratory			
	Color Tests		UV
	Column Chromatography		IR
	Microcrystal Tests		CE
	Thin Layer Chromatography		GC/MS
	GC		Other (please specify)
	HPLC		Other (please specify)
Indicate Analytical Problem(s) Nominee Would Like to Have Covered:			
Choice of Seminar Dates:			
1st Choice:		2nd Choice:	
Laboratory Chief/Director:			
Printed Name: _____		Signature: _____	
Title: _____		Date: _____	
Phone: _____			